

(19) Korean Intellectual Property Office (KR)
(12) Utility Model Gazette (Y1)

51) Int. Cl.⁵ (45) Publication Date: June 07, 1991
F24C 15/32 (11) Registration Number: 20-1991-0003902

(21) Patent Application Number	20-1986-0014638
(22) Filing Date	September 24, 1986
(65) Unexamined Publication Number	20-1988-0006597
(43) Unexamined Publication Date	May 31, 1988

(71) Applicant	SAMSUNG Electronics Co. Ltd Hyungsoo Han 416, Maetan-dong, Suwon-si, Gyeonggi-do
----------------	---

(72) Inventor	Byungsam Seo 68-301, Jangwi-dong, Seongbuk-gu, Seoul
---------------	---

(74) Agent	Younggil Kim
------------	--------------

Examiner: Inki Kim

(54) MICROWAVE OVEN COOLING DEVICE

Abstract:

Representative Drawing:

FIG. 1

Index:

[SPECIFICATION]

[TITLE]

MICROWAVE OVEN COOLING DEVICE

[BRIEF DESCRIPTION OF THE DRAWINGS]

FIG. 1 is an entirely exploded perspective view of the present device.

FIG. 2 is an assembled perspective view of the present device.

FIG. 3 is a sectional view taken along line A-A of FIG. 2.

FIG. 4 is a sectional view taken along line B-B of FIG. 2.

<DESCRIPTION OF THE SYMBOLS IN MAIN PORTIONS OF THE DRAWINGS>

2: Cavity

9: Air intake path

10: Air discharge path

11: Air splitting plate

12: Fixing screw

17: Lower air exhaust aperture

18: Lower cover

[DETAILED DESCRIPTION OF THE PRESENT DEVICE]

The present device relates to a cooling device of a microwave oven in which a propeller type is applied to easily install an air splitting plate to an upper duct, thereby effectively cooling the microwave oven.

According to related art microwave oven, air sucked from a lower side is exhausted through an upper duct. Thus, only a microwave oven in which a blower motor is applied was usable.

In such the microwave oven using the blower motor, there is

a limitation that the microwave oven is not effectively cooled because a large-sized motor and high-voltage transformer are necessarily required and a mechanical structure is weak.

It is therefore an object of the present device to provide a microwave oven in which an air splitting plate is disposed on an upper duct of the propeller type microwave oven. Also, as necessary, the air splitting plate is detachably disposed and completely assembled with the microwave oven from the outside to easily insert the splitting plate into an external plate, thereby effectively cooling the microwave oven. Hereinafter, the above-described structure will be described in detail with reference to accompanying drawings.

A magnetron 3a is disposed on an upper end of a sidewall of a cavity 2 in which a cooking chamber 3 is defined. A high-pressure transformer 4 is disposed below the magnetron 3a. Air is sucked by a propeller 6 disposed at a side of a cavity rear plate 2a in which an intake hole 5 is defined. The air passing through air guide holes 7 and 7a defined in both sidewalls of the cavity 2 may be exhausted through an exhaust hole 8 to cool a microwave oven 1. A top surface of the cavity 2 is split by an air splitting plate 11 to define an air intake path 9 and an air exhaust path 10. An air flow induction duct 14 on which an upper cover 13 is disposed is installed at a front side of the air splitting plate 11. A plurality of air intake apertures and a plurality of exhaust apertures are punched in the upper cover 13. An air guide duct 15

is attached to a side of a rear surface of the air splitting plate 11 using a fixing screw 16. A lower cover 18 having a plurality of lower air exhaust apertures 17 is disposed below the cavity 2. A non-explained reference numeral 19 in the drawings represents an external plate, and a reference numeral 16b represents an air splitting plate fixing screw.

As described above, according to the present device, when the propeller 6 disposed at the side of the cavity rear plate 2a is rotated to suck external air through the air intake aperture 12 defined in the side of the upper cover 13, the air is sucked through the intake hole 5 of the cavity rear plate 2a via the air intake path 9 of the air flow induction duct 14.

Here, left and right sides and a back surface of the cavity 2 are closed. Thus, the air introduced from the intake hole 5 cools the magnetron 3a and the high-pressure transformer 4 which are disposed at a side of the cavity 2. Then, the air passing through the air guide holes 7 punched in the cavity sidewall 2a cools the cooling chamber 3, and simultaneously, rotates a stirrer (not shown). Thereafter, the air is exhausted to the outside of the cooking chamber 3 through the air guide hole 7a punched in the side of the cooking chamber 3.

The air exhausted from the cooking chamber 3 passes through the exhaust hole 8 of the cavity rear plate 2a and is guided by the air guide duct 15.

Thus, the air guided by the air guide duct 15 is exhausted

through the air exhaust apertures 13 of the upper cover 13 via the air exhaust path 10 of the air flow induction duct 14.

As described above, according to the present device, the air flow induction duct in which the air intake path and the air exhaust path defined by the air splitting plate are disposed on the top surface of the typical microwave oven. Thus, unlike the related art microwave oven, in the microwave oven according to the present device, the components and the cooking chamber of the microwave oven may be effectively cooled, and also, the external plate may be fixed to the sidewall of the cavity. Therefore, unlike the related air microwave oven, a fixing bracket may not be required, and thus, an assembly process may be simplified.

(57) CLAIMS

1. A cooling device of a microwave oven, comprising:
a cavity (2) in which a cooking chamber is defined;
a magnetron (3a) disposed on an upper end of a sidewall of the cavity (2);
a high-pressure transformer (4) disposed below the magnetron (3a);
a cavity rear plate (2a) in which an intake hole (5) is defined;
and
a propeller (6) disposed at a side of the cavity rear plate (2),
wherein air is sucked by the propeller (6) to pass through

air guide holes (7) and (7a) defined in both sidewalls 2b of the cavity (2), thereby be exhausted through an exhaust hole (8) and cooling the microwave oven (1),

Wherein a top surface of the cavity (2) is split by an air splitting plate (11) to define an air intake path (9) and an air exhaust path (10), an air flow induction duct (14) comprising an upper cover (13) in which a plurality of air intake apertures and a plurality of exhaust apertures are punched in the upper cover (13) is installed at a front side of the air splitting plate (11), an air guide duct (15) is attached to a side of a rear surface of the air splitting plate (11) using a fixing screw (16), and a lower cover (18) having a plurality of lower air exhaust apertures (17) is disposed below the cavity (2).

공기분할판(11)에 의해 분리형성되고 전방에 다수의 공기 유입통(12)과 공기 배출통(12a)이 천공된 상측 덮개(13)가 설치어진 공기 흐름유도덕트(14)를 착설하고 후면 입측에 배출 공기 안내덕트(15)를 고정나사(16)로 착설하여 캐비티(2) 하부에 다수의 하측공기 배출통(17)을 가진 하부덮개(18)를 설치하여 구성한 것으로 도면중 미설명부호 19는 외장판을 표시한 것이며, 16b는 공기분할판 고정나사를 표시한 것이다.

이와같이 된 본 고안은 캐비티 후면판(2a) 일측에 설치된 프로펠라(6)가 회전하게 되면 외부의 공기를 상측덮개(13) 일측의 공기 유입통(12)으로 부터 흡입하면 공기 흐름 유도덕트(14)의 공기 흡입로(9)를 통하여 캐비티 후면판(2a)의 흡입공(5)으로 공기를 흡입한다.

이때 캐비티(2)의 좌우측 및 배면은 모두 외장판(19)으로 막혀있다. 따라서 흡입공(5)으로 부터 유입된 공기는 캐비티(2)일측에 설치된 마그네트론(3a)과 고압트랜스(4)를 냉각시킨후 캐비티 측벽(2a)에 천공된 공기안내공(7)을 통과한 공기는 조리실(3)을 냉각함과 동시에 스티리(도시치 않음)을 회전시킨 후 조리실(3)일측에 천공된 공기안내공(7a)를 통하여 조리실(3)외부로 배출된다.

조리실로 부터 배출된 공기는 캐비티 후면판(2a)의 배출공(8)을 통과하여 배출공기 안내덕트(15)에 의해 안내된다.

따라서 배출공기 안내덕트(15)에 의해 안내된 공기는 공기흐름 유도덕트(14)의 공기배출로(10)를 통하여 상측 덮개(13)의 공기 배출통(13)으로 공기를 배출하게 되는 것이다.

상술한 바와같은 본 고안은 통상의 전자렌지 상부면에서 공기분할판에 의해 공기 유입로와 공기 배출로가 형성된 공기흐름 유도덕트를 설치함으로써 종래와 달리 전자렌지의 부품 및 조리실을 효과적으로 냉각시킬 수 있으며 캐비티의 벽면에 외장판을 동시 고정할 수 있어 종래와 달리 고정용 브라켓이 필요없어도 조립을 간편하게 할 수 있는 이점이 있는 것이다.

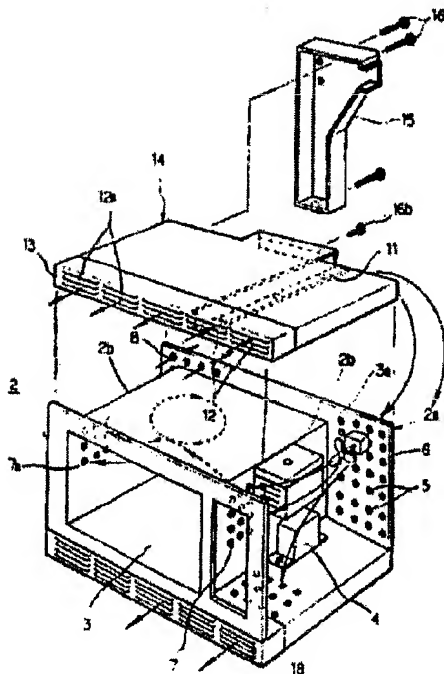
(57) 청구의 범위

청구항 1

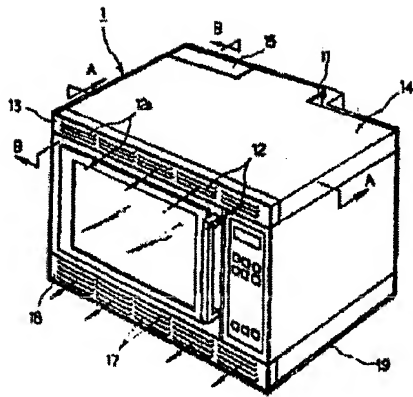
조리실(3)이 형성된 캐비티(2) 일측벽 상단에 마그네트론(3a)을 설치하고 그 하부에 고압트랜스(4)를 설치하여 흡입공(5)이 형성된 캐비티 후면판(2a)일측의 프로펠라(6)에 의해 공기가 흡입되어 캐비티양측벽(2b)의 공기 안내공(7), (7a)를 통과한 공기가 배출공(8)으로 배출되어 전자렌지(1)를 냉각시킬 수 있도록 형성한 통상의 것에 있어서, 캐비티(2) 상부면에 공기흡입로(9)와 공기 배출로(10)가 공기분할판(11)에 의해 분리 형성되고 전방에 다수의 공기 유입통(12)과 공기배출통(12a)의 천공된 상측덮개(13)가 설치어진 공기흐름 유도덕트(14)를 착설하고 후면 입측에 배출공기안내덕트(15)를 고정나사(16)로 착설하여 캐비티(2)하부에 다수의 하측공기 배출통(17)을 가진 하부덮개(18)를 설치하여 구성한 것을 특징으로 하는 전자렌지의 냉각장치.

도면

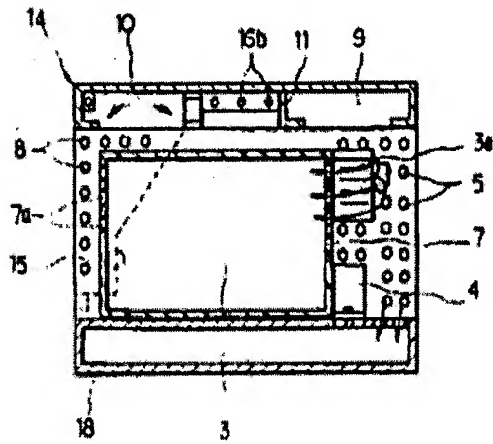
도면1



도면2



도면3



도면4

